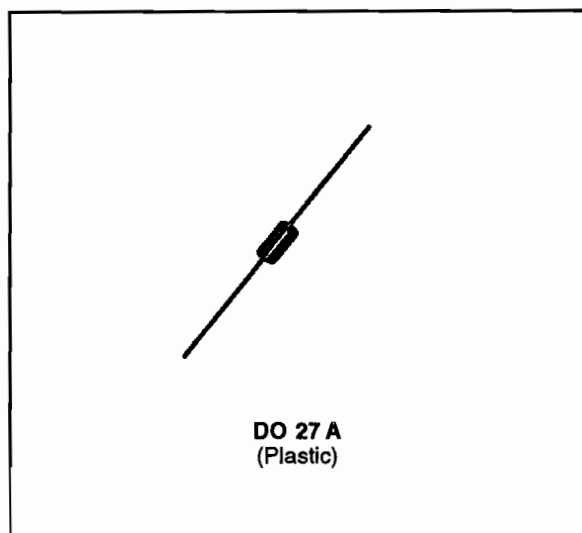


HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

- VERY LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- HIGH SURGE CURRENT
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF t_{rr} AND I_{RM} AT 100°C UNDER USERS CONDITIONS



DESCRIPTION

Low voltage drop and rectifier suited for switching mode base drive and transistor circuits.

ABSOLUTE MAXIMUM RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetive Peak Forward Current	$t_p \leq 20\mu s$	70	A
$I_F (AV)$	Average Forward Current*	$T_a = 85^\circ C$ $\delta = 0.5$	3	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	70	A
P_{tot}	Power Dissipation *	$T_a = 85^\circ C$	2.5	W
T_{stg} T_j	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	$^\circ C$
T_L	Maximum Lead Temperature for Soldering during 10s at 4mm from Case		230	$^\circ C$

Symbol	Parameter	BYW 98-				Unit
		50	100	150	200	
V_{RRM}	Repetitive Peak Reverse Voltage	50	100	150	200	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	55	110	165	220	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient*	25	$^\circ C/W$

* On infinite heatsink with 10mm lead length.

ELECTRICAL CHARACTERISTICS**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			10	μA
	$T_j = 100^\circ\text{C}$				0.5	mA
V_F	$T_j = 25^\circ\text{C}$	$I_F = 9\text{A}$			1.1	V
	$T_j = 100^\circ\text{C}$	$I_F = 3\text{A}$			0.85	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$T_j = 25^\circ\text{C}$ $V_R = 30\text{V}$	$I_F = 1\text{A}$ See figure 10	$di_F/dt = -50\text{A}/\mu\text{s}$			35	ns
Q_{rr}	$T_j = 25^\circ\text{C}$ $V_R \leq 30\text{V}$	$I_F = 2\text{A}$	$di_F/dt = -20\text{A}/\mu\text{s}$		12		nC
t_{fr}	$T_j = 25^\circ\text{C}$ Measured at $1.1 \times V_F$	$I_F = 1\text{A}$	$t_r = 10\text{ns}$		20		ns
V_{FP}	$T_j = 25^\circ\text{C}$	$I_F = 1\text{A}$	$t_r = 10\text{ns}$		5		V

To evaluate the conduction losses use the following equations:

$$V_F = 0.66 + 0.03 I_F$$

$$P = 0.06 \times I_{F(AV)} + 0.03 I_F^2(\text{RMS})$$

Figure 1. Maximum average power dissipation versus average forward current.

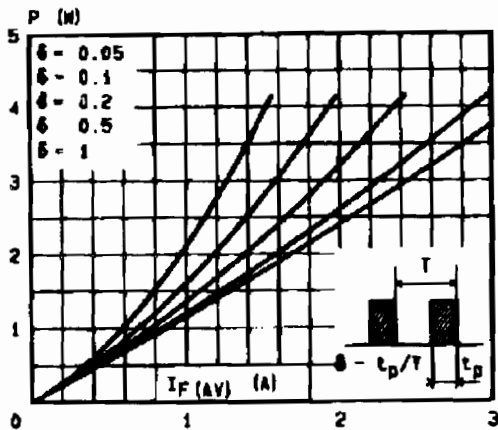


Figure 2. Average forward current versus ambient temperature.

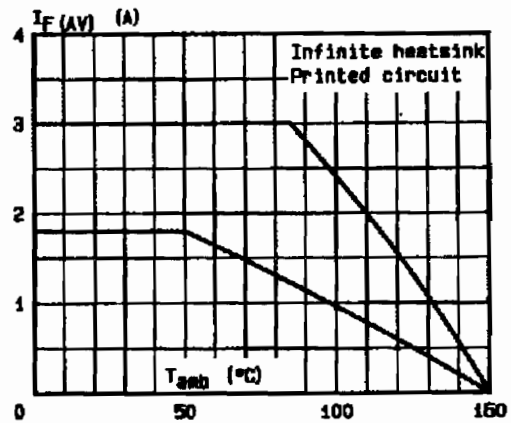
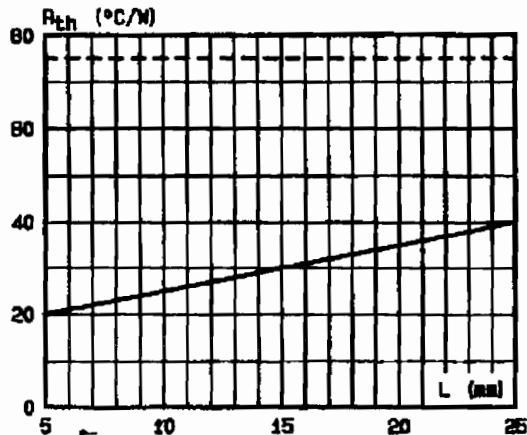


Figure 3. Thermal resistance versus lead length.



Mounting n°1
INFINITE HEATSINK

Mounting n°2
PRINTED CIRCUIT

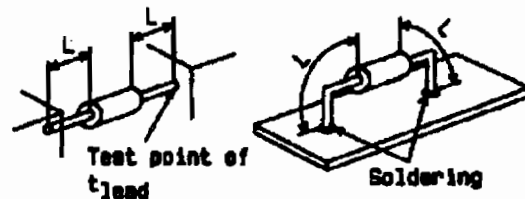


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

Figure 4. Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

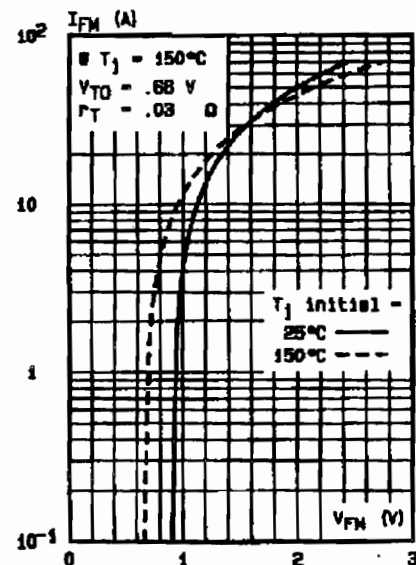
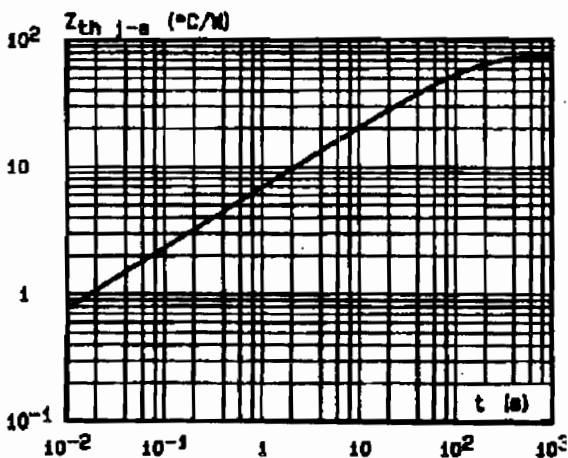


Figure 6. Capacitance versus reverse voltage applied.

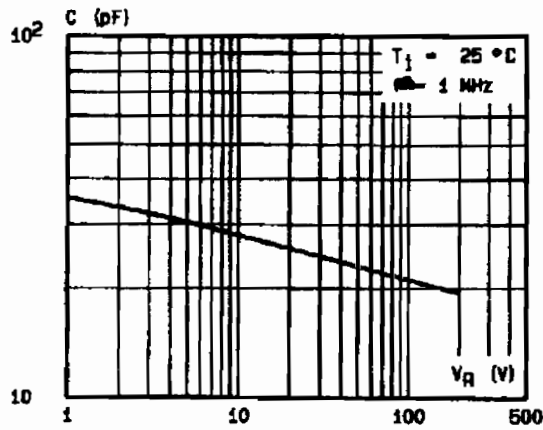


Figure 7. Recovery time versus di_F/dt .

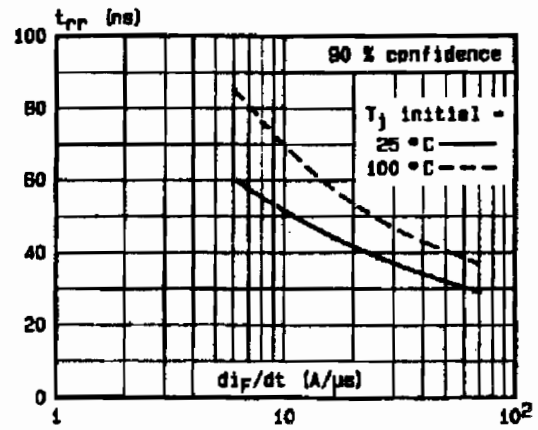


Figure 8. Peak reverse current versus di_F/dt .

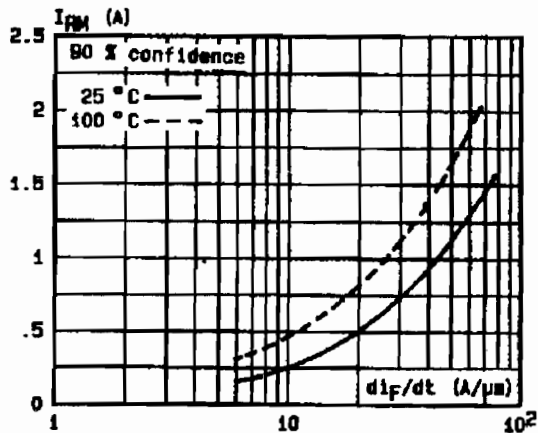


Figure 9. Dynamic parameters versus junction temperature.

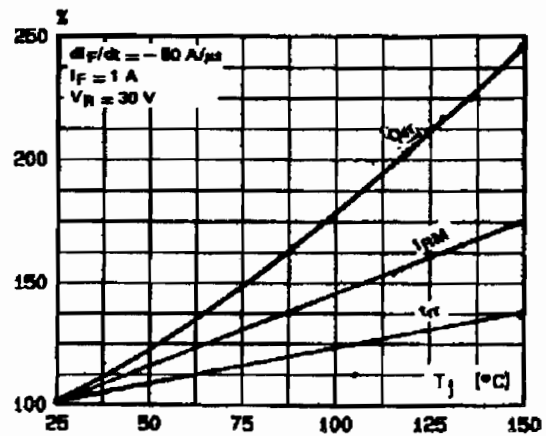
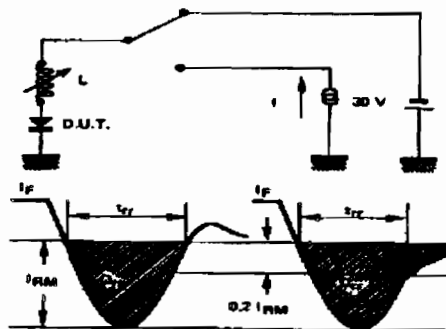
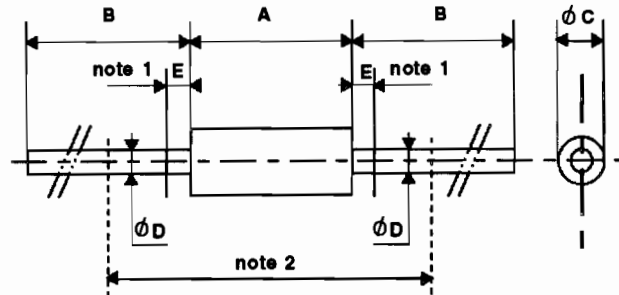


Figure 10. Measurement of t_{rr} (Fig. 7) and I_{RM} (Fig. 8).



PACKAGE MECHANICAL DATA

DO 27A (Plastic)



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.80		0.385	1 - The lead diameter Ø D is not controlled over zone E 2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
B	26		1.024		
Ø C		5.10		0.200	
Ø D		1.28		0.050	
E		1.25		0.049	

Cooling method: by convection (method A)
 Marking: type number; white band indicates cathode
 Weight: 1g

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